

The Importance of Monocular Fixation in Patients with Binocular Vision Disorders during Insertion and Removal

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INTRODUCTION

Successful insertion and removal training involves adequate fixation, manipulation of lids, handling of lenses, and the right mindset -- by both patient and doctor. Fixation, in particular, is crucial but if the patient is inserting a lens with an amblyopic or strabismic eye, this may be impossible without assistance. Monocular fixation should be modified for patients who have difficulty with eye drift and holding steady gaze during insertion and removal training and can be adopted to help patients achieve success. This is especially critical for patients with constant alternating strabismus at near because of the increase in eye drift seen when compared to patients with constant right, constant left, or intermittent strabismus. It is especially important for practitioners to accurately measure, quantify, and qualify binocular disorders at the patient's working distance prior to initiating insertion and removal training.

CASE REPORT

A 34-year-old Black male with Keratoconus presents uncorrected complaining of decreased/distorted vision OU. Corneo-limbal gas permeable fitting was initiated yielding an improvement of BCVA from 20/70+1 to 20/30+ OD and 20/150+1 to 20/40+ OS. The patient returned to the clinic 4 times to attempt insertion and removal training with poor success but strong motivation at every visit. However, on the fifth attempt, the practitioner discovered that the patient's difficulty was due to unstable diplopia in all gazes. Cover test revealed 45 PD constant left exotropia at distance and 30 PD constant alternating exotropia at near. When an eye patch was used on the alternate eye, the patient experienced single vision and success. This simple tool was used only for in-office training as the patient was able to utilize tactile and handling cues moving forward.



SLIT LAMP FINDINGS

	OD	OS
Adnexa	Normal	Normal
Eyelids	Mild collarettes	Mild collarettes
Sclera/Conjunctiva	Trace, diffuse injection	Trace, diffuse injection
Cornea	Apical thinning, (-) scarring, 0.5mm coalesced infero-nasal superficial punctate keratitis outside of visual axis	Apical thinning, (-) scarring, 3mm inferior superficial punctate keratitis
Iris	Flat and intact	Flat and intact
Anterior Chamber	Deep and quiet	Deep and quiet
Lens	Clear lens capsule, cortex, and nucleus	Clear lens capsule, cortex, and nucleus

CONTACT LENS PARAMETERS

Eye	Power	Brand	Type	Base Curve	Diameter	Center Thickness	Design
OD	+1.25sph	Blanchard	Rose K2 IC	8.23	11.20	0.18	STD PC
OS	+1.25sph	Blanchard	Rose K2 IC	8.23	11.20	0.18	STD PC

CONTACT LENS FIT EVALUATION

	OD	OS
Type of Fit	GP - interpalpebral	GP - interpalpebral
Centration	Minimal inferior decentration	Minimal inferior decentration
Movement	1.0 mm	1.0 mm
Central	central feathery touch	superior central feathery touch
Paracentral	alignment	alignment
Midperipheral	alignment	excessive inferior clearance
Edge	good edge lift	good edge lift

CONCLUSIONS

It is important to consider additional tools to aid in fixation for patients who have difficulty due to binocular disorders during insertion and removal of contact lenses. Additional tools, such as eye patches, can be utilized during training and beyond to improve the likelihood of patient success.

Eye patches are an inexpensive addition to improve patient outcome and can be purchased in reusable forms for long term use or in disposable forms for short term training. They are small so and do not require much storage space. Plastic eye patches are preferred over cloth masks due to their ease of cleaning and the higher probability of lacrimal tearing during insertion and removal training. Plastic patches can be wiped down with an alcohol pad before and after usage for disinfection. Cloth eye patches are preferred for long-term patching and for individual use. Disposable eye patches are an option that is considerate of the current COVID-19 pandemic and can be opted in favor over the reusable patches for the time as they can be easily disinfected.

While valuable tools such as the EZI Scleral Lens Applicator Ring and See Green[®]™ Lens Inserter Stand have been developed to assist with insertion, patients struggling with binocular discomfort may require supplementary tools to achieve independent success.

REFERENCES

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